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ABSTRACT

Management of student teams in information systems (IS) courses so that students learn how to participate in teams effectively is an important task for IS professors. However, most research on this topic applies what is learned from student teams to teams in the work world, not to the academic environment. Three professors at two universities in six classes apply interventions to improve student team process in two courses: Database Management Systems, and Systems Analysis and Design. Two control groups were used. Results indicate that these interventions make a significant difference, although caution must be used in interpreting the results of this exploration. Includes three tables: meta-analysis of prior research interventions for improving effectiveness of student teams; class descriptions; and interventions employed in each class. (Contains 12 references.) (Author)

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DEVELOPING A ROBUST SYSTEM FOR EFFECTIVE TEAMWORK ON LENGTHY, COMPLEX TASKS: AN EMPIRICAL EXPLORATION OF INTERVENTIONS TO INCREASE TEAM EFFECTIVENESS

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The synergy of informed minds working together is incredible; whereas unprepared minds working together is nothing more than pooled ignorance (Jones, 1996, 87).

ABSTRACT

Management of student teams in information systems courses so that students learn how to participate in teams effectively is an important task for IS professors. However, most research on this topic applies what is learned from student teams to teams in the work world, not to the academic environment. Three professors at two universities in six classes apply interventions to improve student team process in two courses: Database Management Systems, Systems Analysis and Design. Two control groups were used. Results indicate that these interventions make a significant difference, although caution must be used in interpreting the results of this exploration.

INTRODUCTION

Because of the increasing emphasis on teamwork by businesses and subsequently, by higher education, teaching students to work effectively in project teams is an important issue (Gardner and Korth, 1998; McKeague et al, 1999). However, the characteristics of student teams limit the applicability of research on team or group process outside the academic environment (Jones, 1996). A broad ABI Inform search conducted for the most current fifteen years using the search term "student teams listed over 450 articles. However, only six articles during this fifteen-year period dealt with making student teams in an academic environment more effective. Most research used student teams as a surrogate for professional work groups, despite the fact that most student teams operate in a very different context and with a very different level of work experience and domain expertise. A meta-analysis of the literature on effective student teams was conducted to derive a set of interventions with student teams which had improved project team process and/or content learning (Stephens, 2001).

Our interest in ways to make student teams more effective in an academic environment, particularly in information systems classes with term-long projects, arose from our suspicion that teamwork as practiced in academia was serving an opposite from intended purpose. That is, students were learning how *not* to participate in teams effectively. Students tended to procrastinate until the last few weeks of the term and

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then with the high stress levels experienced then, irritability and conflict in teams increased. Frequently, high achieving students on the team exerted a heroic effort ("all nighter) to complete the project either alone or in pairs. Other students got a free ride and the same grade. The team experience seemed to be decreasing learning and increasing grade inflation as all students received grades earned by the better students. Feedback on the project usually came at the end of the term, but no action was required as a result of this feedback. Instead of learning how to execute a project effectively as part of a team, students seemed to be learning all the "what not to do's for effective teamwork. In fact, we asked ourselves, "would the students enter the work world be better prepared for effective teamwork if they had not had teamwork in the academic environment?

Jones (1996) calls for the development of a robust system for managing student teams, a set of interventions that is not instructor dependent or task dependent as long as the task is a complex one like a term-long systems project. Preliminary results indicate that significant improvements can be made with these interventions and that the results are not dependent on a particular instructor. Thus, we demonstrate progress toward a robust system for effective student teamwork on lengthy, complex tasks such as a systems project.

This paper describes our exploration of guidelines for increasing the effectiveness of student project teams, both in terms of learning course content and learning to work well in teams. First, we review the results of a meta-analysis of prior research (Stephens, 2001) and then we look at our exploration of intervention sets with results obtained thus far (data collection and analysis for three of seven classes is incomplete at this writing). Student surveys and comments, peer evaluations, anecdotal information, and instructor judgment are used for our results analysis. Finally, we make recommendations for interventions based upon prior research and our results. Needs for further research are addressed in our conclusion.

RESEARCH QUESTIONS

Our primary concern is with large, more complex projects that require coordination throughout the academic term. Other than projects, two types of assignments tend to be team activities in information technology courses (Stephens and O'Hara, 1999): research papers and case study analyses. This research does not address these two types of team assignments. We are concerned with tasks, like information systems projects, where groups have been shown to perform better than even the best individual in that group: "the problem has multiple parts, no one member has all the information necessary, the problem is at least moderately complex, interdependence is necessary, and there is enough time for members to process information (Watson, Johnson, Merritt, 1998, 162).

Given projects with these attributes, what interventions will facilitate the following objectives?

increase learning of course content

learn how to work in teams effectively including professional meeting conduct, conflict resolution, peer evaluation, workload sharing, incremental versus last minute development, management of non-performers

improve quality for final project deliverables

increase student and instructor satisfaction with the team experience and the project deliverables

prepare students to participate effectively on project teams in the work environment

We begin our exploration of these questions knowing that the development of these guidelines will be an on-going process, one of the "holy grails of our pedagogical efforts. However, work over the past two years has been productive.

INTERVENTIONS EMPLOYED

A review of prior research and an analysis of interventions shown to be effective (Stephens, 2001) provides a background for instructor selection of both interventions and timing of interventions.

Tables 2 and 3 provide summary data concerning the classes in which interventions were employed and the intervention sets employed in each class for this empirical study.

TABLE 1
META-ANALYSIS OF PRIOR RESEARCH
INTERVENTIONS FOR IMPROVING EFFECTIVENESS OF STUDENT TEAMS

Interventions	Source(s)
Rapid, frequent feedback on team process (documentation in form of reports, minutes, agendas, action lists, meeting journals) and project content (reports, presentations, project deliverables)	Jones (1996); Watson et al. (1998), McKeague et al. (1999)
Frequent, regularly scheduled meetings	Jones (1996), McKeague et al. (1999), Stephens and Myers (2000)
Training on working in teams	Jones (1996); Mennecke et al. (1998); McKendall (2000), Siciliano (1999)
Individual as well as team accountability	Jones (1996), McKeague et al. (1999)
Peer evaluation	Watson et al. (1998), Roebuck (1998), McKendall (2000), Siciliano (1999), Rajlich et al. (2000), Stephens and Myers (2000)
Team contract	McKendall (2000)
Reflection on team experience	McKendall (2000)
Student evaluation of other team projects	McKendall (2000)
Lessons on importance of teamwork	Gardner and Korth (1998)
Discussions of prior problems with teamwork	Gardner and Korth (1998), Siciliano (1999)
Assign to teams based on learning styles	Gardner and Korth (1998)
Development of ideal team member profile	Siciliano (1999)
Attention to meeting management	Clark (1998), Stephens and Myers (2000)
Weekly scheduled meetings	McKeague et al. (1999), Stephens and Myers (2000)
Meeting time in class	McKendall (2000)
Defined roles in meetings	Clark (1998), Mennecke and Bradley (1997), Stephens and Myers (2000)
Use of meeting agendas	Clark (1998), Stephens and Myers (2000)
Use of meeting minutes, journals	Clark (1998), McKeague et al. (1999), Stephens and Myers (2000)
Team process as grade component	Stephens and Myers (2000)
Meeting management as grade component	McKeague et al. (1999)
Use of e-mail for information sharing prior to meetings	Clark (1998), Stephens and Myers (2000)
Use of action lists in meeting	Stephens and Myers (2000)

TABLE 2
CLASS DESCRIPTORS

Class	Instructor	Course	University
A	1	Database Management	1
B	2	Database Management	1
C	1	Analysis and Design	2
D	1	Analysis and Design	2
E	3	Analysis and Design	2
F	2	Database Management	1
G	3	Database Management	1

TABLE 3
INTERVENTIONS EMPLOYED IN EACH CLASS

Interventions	A	B	C	D	E	* F	* G
Rapid, frequent feedback on team process (documentation in form of reports, minutes, agendas, action lists, meeting journals) and project content (reports, presentations, project deliverables)			X	X	X	X	X
Frequent, regularly scheduled meetings	X		X	X	X	X	
Training on working in teams				X	X		
Individual as well as team accountability				X	X		
Peer evaluation	X		X	X	X	X	X
Team contract			X	X	X		
Reflection on team experience				X	X		
Student evaluation of other team projects			X	X	X		
Lessons on importance of teamwork				X	X		
Discussions of prior problems with team work	X		X	X	X		
Assign to teams based on learning styles							
Development of ideal team member profile						X	X
Attention to meeting management	X		X	X	X	X	
Weekly scheduled meetings	X		X	X	X	X	
Meeting time in class				X	X	X	X
Defined roles in meetings	X		X	X	X	X	
Use of meeting agendas	X		X	X	X	X	
Use of meeting minutes, journals	X		X	X	X	X	X
Team process as grade component			X	X	X	X	X
Meeting management as grade component				X	X		
Use of e-mail for information sharing prior to meetings	X		X	X	X	X	
Use of action lists in meeting	X		X	X	X	X	

* In Classes F and G, students were allowed to choose to use no interventions or to use the interventions described on a web site. Student teams who chose to use the interventions comprise Class F. Students who chose to use no interventions comprise Class G. The same survey was administered to both groups.

For the continuation of our study (Stephens and Myers, 2000) with Class C, three major changes were made to the treatment for Class A: roles could be assigned for longer durations, a contract was required, and frequent feedback was emphasized with three team presentations instead of the prior final presentation of the project. In Class A, we had required that roles rotate, allowing each team member to play each role. Students in this class (Stephens and Myers, 2000) asked that each team member play each of the three roles (Facilitator, Scribe, Scheduler) then that the roles be assigned for at least three weeks to the same student (see Stephens and Myers, 2000, for a full description of these roles). So we allowed students to take on a role for longer periods of time. Secondly, we required a team contract. The contract must specify

time and place of the regular weekly meeting;

number of permissible absences and justifiable reasons for absence;

conduct during the meeting;

conditions under which a team member could be terminated from the team;

grade to which the team aspired and time/week willing to devote to the project;

use of e-mail (for example, check e-mail at least once per day, use a certain format for attachments); and

other issues of importance to the group.

We emphasized that teamwork is important in our field and also emphasized that we were expecting professional team management, including the termination of non-performing team members. Schedules were the basis for team assignment. Each class member introduced her/him self to the class and indicated when s/he could meet every week. Team contracts had to be accepted by all team members and by the instructor. Elements of the ideal team member (Sciliano, 1999) were used for the contracts.

Thirdly, instead of one project presentation, Class C made three presentations. At each presentation, the class served as Steering Committee, completing an evaluation form and making recommendations. Teams submitted the project notebook for instructor review. Feedback given became a part of project documentation. Before the next presentation and review, changes recommended by the instructor should be made. These changes become part of the next review. One analysis and design class, Class C, used these team process constraints.

The following term, three modifications were made for Class D.

Additional incentives were added for weekly meetings and for responding to feedback.

Peer evaluation concerning the perceived behavior of each team member was administered at midterm.

Some class time was allotted for team meetings.

Points were given for agendas issued two days prior to the meeting and for minutes distributed within two days after the meeting. A template was used for the agenda and the minutes. Teams might not receive full points if minutes were sketchy or agenda items missing. Any student missing the meeting received no points for either the agenda or minutes, thus extending controls beyond the team itself. To encourage timely response to feedback, the team's track record on looping back to revise or correct project work based on feedback became a component of the project grade. Teams that had not responded to feedback on the first presentation by the second presentation had to meet with the instructor. At midterm, each team member completed a survey on the behaviors of other team members. These were summarized and given to each team member. Further, after midterm, teams were allowed some class time for meeting. Class D, an analysis and design class, used these additional conditions.

Class E used almost the same conditions (no midterm peer evaluation and two versus three milestone presentations) as Class D but had a larger team size on average and had a different instructor. As with Class D, the course content was analysis and design. Classes F and G, database management classes, were given a choice concerning team process. They could use the guidelines posted on the class web site or use very few guidelines. The guidelines for Class G are most like those for Class A with the following exceptions.

Class time was allowed for meeting

Assignment to teams is based on student preference of three methods: no preference (random used), description of ideal team member, list of preferred team members

Feedback in the form of two midterm deliverables

Those students in the two classes who did not choose to use the team process guidelines were called Class G. They did participate in the feedback in the form of two midterm deliverables, class time allowed for meetings, and choosing their preferred method of team assignment. These two intervention sets are especially interesting because the class had both computer science and information systems majors. Additional data for analysis is provided in terms of performance according to choice concerning team process and choice according to major. Furthermore, these classes had a mix of non-traditional and traditional students. Many non-traditional students had work experience with teams, whereas traditional age students lacked such experience.

The same instructor managed the team process in Classes A, C, and D. Another instructor managed the team process in Classes B, F, and G. A third instructor managed the team process in Class E. Instructor 1 managed teams at both University 1 and 2 while Instructor 2 managed teams at University 1 and Instructor 3, at University 2.

RESULTS AND DISCUSSION

As Mennecke and Bradley noted (1997), studies of these types will always have confounded results and are by nature, more exploration than experiment. We examined each of our research questions objectives in terms of both survey results, student comments, and professor judgment. Our objectives for these interventions followed in parenthesis with the survey question numbers (Appendix A) which address that objective are as follows.

increase learning of course content (18,19, comments, professor judgement)

learn how to work in teams effectively including professional meeting conduct, conflict resolution, peer evaluation, workload sharing, incremental versus last minute development, management of non-performers (1-17, 20-26, comments, professor judgment)

improve quality for final project deliverables (7, comments, professor judgement)

increase student and instructor satisfaction with the team experience and the project deliverables (27,28, comments, professor judgment)

prepare students to participate effectively on project teams in the work environment (professor judgment)

Increased Learning

All student groups agreed that the project helped them to understand course topics, with the strongest agreement being from students who had points given for weekly team meetings (Appendix B). Surprisingly, students were indifferent about whether the project helped with exams except for students who had grade incentives for weekly meetings (D and E) and they agreed that the project helped them with the exams. In fact, the most frequent rating for that statement was a mode of 5 or strongly agree between those two groups. The intervention that made a difference with learning course content was to provide a grade incentive for weekly meetings, as demonstrated by meeting minutes and action lists submitted weekly. Professors involved also judged that background readings were completed on a week-to-week because the readings were needed to complete incremental project deliverables.

Working in Teams Effectively

The use of agendas, meeting minutes templates, action lists, and designated roles all contributed to professional meeting conduct. All students, including the control and those who chose not to use constraints, agreed that they learned to use meeting time more effectively as a result of the project. All but one of the treatment groups agreed that agendas were valuable and contributed to effective use of meeting time. All groups agreed that action lists were valuable and contributed to equitable workloads. The strongest agreement came from the groups that were rewarded for weekly meetings (D,E). Peer evaluations at midterm seemed to be an effective intervention. Group D had a more favorable experience overall than other groups and was the only one with this intervention. Group D also dismissed one student from a team for contract violation. The effect of midterm evaluation needs further exploration based on these results. Peer evaluations at the end of the quarter did not result in grade changes for any individual student because they indicated that individual contributions had been reasonably equitable. Professors judge that action list monitoring, contracts, and weekly meetings positively affect workload sharing. Results on the use of roles are mixed. The facilitator role was found most valuable and teams with regular weekly meetings agreed that the scribe and scheduler were valuable. The weaker results for the scheduler may indicate that more class time needs to be devoted to this role's duties.

One of the most important results of the interventions experienced by groups C,D, and E was the requirement that deliverables be presented throughout the quarter. Results indicate that an incentive for weekly meetings and increased use of feedback along with the use of roles and meeting management, improves the project and the project experience (Class D,E,A). The deliverables for the project are nearly complete at the same time in the term as the project was typically begun without these interventions. Almost all members of the team participate in the project substantially or are terminated by their team, in keeping with the terms of the team contract. After implementation of the contract and rewarded weekly meetings (Class D and E), teams actually terminated members, as happens in the "real world. Thus, two key problems have been addressed: procrastination and free loading. All groups agreed that their skill at working in groups had improved, but treatment groups D and E, where weekly meetings were

part of the grade, experienced strong agreement with this statement.

Project Quality

Professors judged that the quality of the final project was significantly improved as a result of incremental team development. Using grades as an indicant of quality has proved difficult since grades tend to be relative to overall class performance. With incremental presentations, the expectation for the final project may shift as well. Students perceive that the quality of the project is improved as a result of team activity in all groups, but the strongest agreement is found in groups where team process interventions were employed, so student perception agrees with the professors' perception on improved project quality.

Satisfaction with the Team Experience

Student satisfaction with the team process improves with increased interventions and decreases with less structure or a lower level of interventions. The lowest satisfaction with the team project was experienced by Class B, a control team with the fewest interventions, and the next lowest, by Class G, students who had some interventions but who chose to not follow team process guidelines. The students with the highest level of interventions, Class D, experienced the highest satisfaction (Appendix B). All teams using a contract strongly agreed with the statement in question 27, "The project team worked more effectively with the constraints concerning meetings and roles played than other teams on which I have worked which had no team process constraints. Teams with follow-up (whether rewarded or not) on regular weekly meetings strongly agreed with the statement, "I would choose the same team members again.

When Students Choose

The results with Classes F and G, where students chose whether to use team process interventions, are particularly interesting. While class B was a control class, students in the F group chose not to employ team process constraints. Highlights of these results follow.

36% of the students chose to use the prescribed team process (intervention set F). They were not given any encouragement from the instructor. The guidelines were simply available to students as a link off the web page describing the team project.

CS majors were evenly split between interventions F and G. IS majors were less likely to choose to use the team process (intervention F) only 24% of IS majors made this choice.

Students with intervention set F were more likely to be employed full or part time, perhaps because they have a more mature understanding of the power of teams when run effectively.
Students with intervention F were more likely to comment about increased team effectiveness related to minutes and action lists, though minutes were required of all students.

Students (F and G) recognize the effectiveness of regular, well-planned meetings, but are loath to take time outside of class.

Several teams expressed frustration with students who contributed very little, procrastinated until the last minute, or simply had lower grade expectations.

Many suggested that the derelict students be handled more formally, although an end-of-term peer evaluation accounted for 25% of the project grade. A few suggested the use of contracts. These comments originated with students involved in both interventions F and G.

Students with intervention F more frequently expressed satisfaction with the use of email and phone calls as a way to address differing schedules.

Students with intervention G more frequently expressed a need for more detailed guidelines (!).

Even students with extensive work experience express frustration about covering for the slackers in order to delivery a high quality project.

One student expressed concern over the distribution of international students felt that his/her team contained too many international students which generated communication problems.

One student expressed concern over the gender distribution of her team she was the only female.

At the beginning of the term all students were asked for "team preferences in an on-line survey. The instructor attempted to use these requests to meet students' perceived needs. At the end of the team

process, several students mentioned the importance of choosing their own teammates, most especially students in treatment G. It is interesting to note that students with very specific ideas of who to work with were more likely to choose to follow treatment F (team guidelines).

Also students who initially described the ideal team member using phrases like "achievers or "[students] who work hard were placed on teams together. At the end of the process, they were generally the most dissatisfied with the experience. Perhaps, students accustomed to star performers carrying the group, selected each other with this preference. The link between ideal team member definition and project outcomes bears further investigation.

Students with some work experience are more likely to choose to follow a structured approach to teamwork. Therefore, it may be more important to required adherence to the team process when students have little personal experience with the world of work.

Instructor 2 will experiment with contracts in the future.

Instructor 2 will explore assigning student to teams based on work styles or habits, as with the Myers-Briggs instrument or similar.

CONCLUSIONS AND FURTHER RESEARCH

Our experience in the initial study involving Classes A and B, as well as this continuation with five more classes, leads us to believe that student team projects can teach effective teamwork and better prepare students for a team environment in the work world. Student teams can reinforce the learning of course content for all students, not just the stars who have been carrying the load for most student team projects.

Two interventions appear to be critical.

Weekly meetings as evidenced by meeting agendas, minutes, action lists submitted for grading purposes. Any absent student receives no points.

Milestone presentations throughout the quarter timed to follow the topics currently being studied. Student teams receive feedback from peers and the professor.

Our results are encouraging. Although much work remains to be done, we conclude that it is possible to dramatically increase learning, student team effectiveness, and both student and instructor satisfaction with the experience when team process interventions are employed. A phased approach may be used (Stephens, 2001). These interventions allow student teams to more accurately simulate the experience of professional business teams, thus better preparing our students for role on these teams in the work world.

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APPENDIX A
SURVEY

Project Team Evaluation Name _____

Part 1: *Using the following scale, please evaluate the following statements. Please mark the accompanying scantron form. Please record your name on the scantron form as well as this form.*

A. Strongly Agree B. Agree C. Indifferent D. Disagree E. Strongly Disagree

1. I like to work on a project team.
2. I like to work alone.
3. I prefer to do project work alone.
4. I prefer to do project work as a member of a team.
5. Projects take more time if completed as a team activity rather than as an individual activity.
6. Projects take less time if completed as a team activity rather than as an individual activity.
7. Project quality is improved if the project is a team activity.
8. Establishing a weekly meeting time helped the team to work on the project throughout the semester instead of as a "last minute endeavor.
9. Publishing an agenda for each meeting was valuable.
10. Publishing an agenda for each meeting caused us to use meeting time more effectively.
11. Creating an action list was valuable.
12. Creating an action list helped us to stay organized.
13. Creating an action list helped us to make sure everyone did his or her "fair share.
14. Recording and publishing the minutes of meetings was valuable.
15. Recording and publishing the minutes of meetings improved communication.
16. I learned how to use meeting time more effectively.
17. My skill at working on teams has improved as a result of this experience.
18. The project helped me to better understand topics and problems in the course.
19. My participation on the project team will helped or will help me with the exam(s).
20. Playing the role of facilitator was valuable to me.
21. Playing the role of scribe was valuable to me.
22. Playing the role of scheduler was valuable to me.
23. Having a designated scheduler, scribe, and facilitator improved the team process.
24. Having a designated scheduler improved the team process.
25. Having a designated scribe improved the team process.
26. Having a designated facilitator improved the team process.
27. The project team worked more effectively with the constraints concerning meetings and roles played than other teams on which I have worked which had no team process constraints.
28. I would choose the same team members again.

APPENDIX B
RESULTS FROM SURVEY
AVERAGE, MODE, STANDARD DEVIATION

(Please reference APPENDIX A for question numbers and TABLES 2 AND 3 for interventions)

Set	A			B			C			D			E			F			G		
Q#	Avg	M	SD	Avg	M	SD	Avg	M	SD	Avg	M	SD	Avg	M	SD	Avg	M	SD	Avg	M	SD
1	3.76	4	0.94	3.80	4	1.16	3.92	4	0.91	3.93	4	1.22	4.16	4	0.91	4.32	5	0.84	3.83	5	1.18
2	3.33	3	0.8	3.60	3	1.1	3.68	4	0.99	3.36	4	1.14	3.44	3	0.99	3.45	4	0.96	3.43	4	1.07
3	2.67	3	0.91	3.20	5	1.37	3.08	3	1.12	2.71	3	0.92	2.76	2	1.17	2.55	3	0.96	2.86	4	1.24
4	3.86	5	1.01	3.50	4	1.25	3.88	4	0.88	3.93	4	1.21	3.96	4	0.93	4.00	5	0.93	3.86	4	0.97
5	3.05	2	1.36	3.10	2	1.45	3	2	1.22	2.93	2	7.53	2.84	2	1.34	2.82	2	1.26	3.14	4	1.35
6	3.38	4	1.36	3.10	5	1.47	3.6	4	0.96	6	4	0.63	3.40	4	1.33	3.32	4	1.04	3.31	2	1.32
7	4.1	5	1.02	3.93	4	1.14	4.28	5	0.74	4.64	5	0.27	4.29	4	0.61	4.09	4	0.81	3.97	4	0.95
8	4.43	5	0.68				4.16	5	1.07	4.93	5	0.73	4.56	5	0.80						
9	3.67	4	1.06				3.2	4	1.26	4.29	5	0.73	3.82	4	0.87						
10	3.76	4	1.09				3.2	4	1.32	4.07	4	0.65	3.71	4	0.85						
11	4.14	4	0.91				3.52	3	1.16	4.50	5	0.74	4.02	4	0.68						
12	4.29	5	0.85				3.64	4	1.04	4.36	5	0.77	4.24	4	0.67						
13	3.71	3	1.1				3.52	4	1.19	4.14	4	1.02	3.73	4	0.90						
14	3.62	4	1.2				3.16	4	1.28	3.57	4	1.07	3.42	4	0.90						
15	3.52	5	1.29				3.08	3	1.22	3.71	4	0.76	3.49	4	0.93						
16	3.9	4	0.94	3.83	4	0.95	3.88	4	0.78	4.43	5	0.84	4.11	4	0.76	4	4	0.69	4.03	4	0.73
17	3.9	4	1.09	3.83	4	0.93	3.64	4	0.95	4.64	5	0.63	4.49	5	0.62	4.23	4	0.69	3.91	5	0.98
18	4.38	4	0.59	3.97	4	1.16	3.72	4	1.14	4.64	5	1.33	4.56	5	0.77	4.50	5	0.51	4.47	5	0.61
19	3.33	3	1.02	3.3	3	1.12	3.36	4	1.25	4.07	5	0.80	4.20	5	1.05	3.36	4	0.95	3.11	3	1.05
20	3.52	4	0.98				3.6	3	1.15	4.21	5	0.78	3.91	4	0.36						
21	3.43	3	0.98				3.32	3	1.07	4	4	0.73	3.87	4	0.97						
22	3.29	3	0.9				3.2	3	1.04	3.93	4	0.97	3.80	4	0.92						
23	4.14	4	0.73				3.4	4	1.32	4.21	5	0.92	4.04	4	1.04						
24	3.52	4	0.93				3.24	3	1.23	3.93	3	0.89	3.80	4	1.15						
25	3.71	4	0.96				3.28	3	1.28	4.21	5	0.83	3.84	4	1.08						
26	3.95	4	0.74				3.6	4	1.19	4.29	5	0.65	4.00	4	0.91						
27	3.86	4	0.73				3.44	5	1.39	4.43	5	1.09	4.29	5	0.78						
28	4.19	5	1.17	3.24	5	1.41	4.4	5	1.15	4.50	5	2.73	4.33	5	1.03	3.82	4.00	1.10	3.69	5	1.32

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